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ABSTRACT

Two factor analytic studies of anxiety and locus of control produced multiple factors in groups of normal and non-normal children. Mean scores discriminated between groups and the factors that emerged differed qualitatively across groups. The multidimensionality of the constructs and qualitative differences as these constructs operated in the different groups suggest that interpretation of such scales on the basis of their meaning of the construct in normals may be a gross oversimplification of the complexity of the construct purportedly measured. (Author)

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Variations in Personality Constructs in Normal and Non-Normal Children

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Variations in personality constructs in normal and non-normal children

Two factor analytic studies of anxiety and locus of control produced multiple factors in groups of normal and non-normal children. Mean scores discriminated between groups and the factors that emerged differed qualitatively across groups. The multidimensionality of the constructs and qualitative differences as these constructs operated in the different groups suggest that interpretation of such scales on the basis of their meaning of the construct in normals may be a gross oversimplification of the complexity of the construct purportedly measured.

Questions have been raised recently about the widely-accepted practice of discriminating between normals and non-normals and predicting individual differences by the use of scales which purport to measure stable dispositions (e.g., personality variables or traits). The usual practice in standardization of such scales is to gather data on a normal population; the clinician then compares the scores of his non-normal client with the normative group on which the scale was standardized. Since computer programs for factor analyses have become available, a large number of these analyses have shown varying results on scales measuring such personality constructs as "anxiety" and "locus of control", about which data are reported in this paper. In general, the findings of factor analytic studies tend to support the notion that these constructs are multidimensional rather than unidimensional in nature, and some studies suggest that the scales operate differently in normal and non-normal populations; that is, there are qualitative as well as quantitative differences in scale responses in the two populations.

In the case of anxiety measures, Spielberger's (1966, 1972) development of state-trait anxiety theory conceptualizes two distinct types of anxiety, A-State and A-Trait. State anxiety refers to transitory emotional states which vary from situation to situation and from time to time according to the stress the individual is experiencing at that moment. Trait anxiety refers to a relatively stable personality dimension which relfects an individual's proneness to experience anxiety states. Numerous studies (see Smith & Lay, 1974) and factor analytic investigations (Kendall, Finch, Auerbach, Hooke & Mikulka, in press); Newmark, Faschingbauer, Finch & Kendall, 1975) have supported the operation of these two dimensions of anxiety in adults, and the presence of state-trait dimensions of anxiety have been demonstrated in normal children (Spielberger, 1973) and emotionally disturbed children (Finch, Montgomery & Deardorff, 1974).

The usefulness of Spielberger's state-trait concept in discriminating between normal and non-normal adults has received considerable research support (see Smith & Lay, 1974) and some evidence for the validity of such a discrimination with children is available (Spielberger, 1973; Montgomery & Finch, 1974). The notion that A-Trait is a stable personality variable, however, has been demonstrated only with normal children (Spielberger, 1973) in whom only A-State changes were obtained. In studies with emotionally disturbed children, both A-Trait and A-State were found to change following a failure experience (Finch, Kendall, Montgomery & Morris, 1975) and after the stress of psychological testing (Sitarz, 1974). The results of the latter two studies raise serious questions about differences in the experience of state and trait anxiety by normal and non-normal children, e.g., qualitative differences in the way the scale operates.

Locus of control refers to an individual's tendency to perceive reinforcement as being contingent upon his action (e.g., internal control) or as the result of luck, change, fate or as under the control of powerful others (e.g., external control). In Rotter's theoretical framework, locus of control is regarded as generalized expectancies of reinforcement, which ". . . appeared to vary systematically, depending on the nature of the situation and also as a consistent characteristic of the particular person who was being reinforced" (Rotter, 1975, p. 56).

Factor analyses of the locus of control construct in adults have resulted in a general factor (Rotter, 1966) and in multiple factors (Mirels, 1970; Viney, 1974; Levenson, 1973), and improved predictions have been obtained with the use of factor scores (Abramowitz, 1973; Gootnick, 1974). In addition, the Levenson study demonstrated the utility of factor scores in differentiating between normals and non-normals and among diagnostic groups of psychiatric patients.

In children, locus of control studies have produced varying results. The construct failed to discriminate between normal and disturbed children within the context of a personal space study (Kendall, Deardorff, Finch & Graham, 1974), while significant differences between groups were found in a study involving an information-seeking task (Ollendick, Finch & Nelson, 1974). Overall locus of control scores failed to discriminate between normal and disturbed children in another study (Kendall, Finch & Mahoney, in press), and only one of five factors made the discrimination successfully. (The factors had been obtained previously from an emotionally disturbed group by Kendall, Finch & Chirico, 1974). The factor that differentiated the two groups was a Helplessness factor, with emotionally disturbed children endorsing more Helplessness items than normals.

The purpose of the two studies to be described was to explore the factor structures of anxiety and locus of control constructs as they operate in normal and non-normal groups of children when measured, respectively, by the State-Trait Anxiety Inventory for Children (STAIC, Spielberger, 1973) and the Nowicki-Strickland Locus of Control Scale for Children (NOSIE, Nowicki & Strickland, 1973). It was hypothesized that the multidimensionality of both of these constructs would be supported and that qualitative as well as quantitative differences between groups would emerge.

STUDY I

METHOD

Subjects

One group of subjects was composed of 120 emotionally disturbed children in residential treatment at the Virginia Treatment Center for Children, a state-supported facility. The mean age was 11.3, and all subjects were of average or above intelligence. The second group of subjects included 126 normal elementary school children enrolled in a middle-class school who were

matched for age and sex with the emotionally disturbed group. The mean age was 11.1.

Procedure

All subjects were individually administered the STAIC under conditions of no stress. Responses on the A-State and A-Trait scales were subjected to a principal components factor analysis using an indirect oblimin oblique rotation, since correlated factors were predicted. Factors with eigenvalues less than 1 were excluded from the interpretation, and items with loadings on more than one factor were interpreted with the factor on which they loaded the highest.

RESULTS

Factor analysis of the responses of the normals resulted in four A-State and two A-Trait factors which accounted for 79.1% of the variability. Two A-State and two A-Trait factors, accounting for 79.7% of the variability, emerged in the emotionally disturbed group analysis. When factors for the two groups were compared, results indicated that one of the normal Trait factors was highly related to the two Trait factors found in the emotionally disturbed groups, and that these factors suggest a cognitive worry and indecisiveness which is typically associated with the generally-accepted notion of Trait anxiety. In addition, both the emotionally disturbed and the normal analyses resulted in a State factor which was composed of the positive descriptor items representing feelings of emotional euphoria at any given moment. A contrast in results from the two groups, however, is in the area of negative State descriptors. While only one factor representing the negative descriptors of the A-State scale emerged from the emotionally disturbed children's responses, three factors resulted from the analysis of the normal responses. This finding would seem to suggest that the normal children were better able to discriminate between momentary feelings of anxiety than were emotionally disturbed children.

Another contrast between the two groups is in the amount of variance accounted for by State and Trait factors. While the contribution of each did not differ for normal children, State factors accounted for significantly more of the variance than did Trait factors for emotionally disturbed children.

STUDY II

METHOD

Subjects

Subjects included the following three groups: Normals - 107 public school children from the suburban areas of Terra Haute, Indiana, and Richmond, Virginia; mean age, 10.9; 64 males (3 blacks), 43 females; all subjects at least average in intelligence. Emotionally disturbed - 189 residents of Virginia Treatment Center for Children, a state-supported facility; mean age, 11.1; 151 males, 38 females, 10% black; all subjects at least average in intelligence. Juvenile Delinquent - 185 juvenile offenders committed to state custody and living in one of seven learning centers; mean age, 15.3; 144 males (79 blacks), 41 females (16 blacks); mean IQ in dull normal range.

Procedure

All subjects completed the NOSIE according to standard instructions. Responses of each of the subject groups were subjected to separate principal components factor analyses using Kaiser's Varimax criterion. Factors with eigenvalues less than 1 were excluded from the interpretations, and only items that loaded above $\pm .35$ were interpreted. Items with loadings on more than one factor were included only in the interpretation of the factor with which they loaded the highest. Each of the factor interpretations was considered from the external perspective so that high scores are reflected by the factor label.

RESULTS

Results of t test comparisons between independent means showed both the emotionally disturbed and delinquent groups to be more external than the normal

group (respectively, $t(294) = 4.65$, $p < .001$; $t(290) = 2.23$, $p < .05$). In addition, the emotionally disturbed group was found to be more external than the juvenile delinquents ($t(372) = 3.93$, $p < .001$).

The analysis of factors for each group resulted in seven meaningful factors which accounted for 67% of the total variability in the normal group, five for the emotionally disturbed group (accounting for 59.2% of the variability), and six for the juvenile delinquents (representing 62.1% of the variability). The three factors in the analysis of normals which were labeled (each accounting for more than 8% of the variance) were designated Generalized Expectancy, Lack of Intellectual Concern, and Lack of Effort. (All factors are listed in the relative order of their contribution to the total variability.) In the emotionally disturbed group, the factors were labeled Helplessness, Persecution, Magic-Superstition, Futility, and Genetic Superstition. Factors which emerged in the Juvenile Delinquent group were termed Superstition, Helplessness at Home, Helplessness with Friends, Helplessness with Parents, Persecution, and Futility.

For the normal group, the factor which accounted for the most variability contained a variety of items and represented a generalized expectancy. In contrast, the items within this cluster loaded on the Persecution, Helplessness, and Genetic Superstition factors of the emotionally disturbed group and the Persecution factor of the delinquent group.

Comparison of the amount of variability accounted for by each of the factors in the three subject groups revealed that in the normal group, no one factor accounted for a significantly greater amount of the variability than any other factor. In contrast, both of the non-normal groups produced a single strong factor that did account for a significantly larger portion of the variability.

DISCUSSION

Quantitative differences were strong on the locus of control scale with both of the non-normal groups endorsing significantly more of the items in an external direction than the normals. A discrimination between delinquents and emotionally disturbed children also was obtained, with the latter group showing significantly greater externality. Although a direct comparison of overall A-Trait and A-State scores was not made, a previous study with 60 of the normals and 60 of the emotionally disturbed children in the sample resulted in a discrimination with the emotionally disturbed group showing significantly greater ($p < .005$) for each) A-Trait and A-State anxiety than normals (Montgomery & Finch, 1974). Thus it appears that both the STAIC and the NOSIE discriminate adequately between normal and non-normal children.

Results of both of these studies support the multidimensionality of the anxiety and locus of control constructs, although the evidence is not uniform for both. Whereas trait anxiety in children as measured by the Children's Manifest Anxiety Scale (Castaneda, McCandless & Palermo, 1956) has been found to be a multidimensional (Finch, Kendall & Montgomery, 1974), the present study revealed a major trend in the unidimensional direction for the STAIC A-Trait. In the case of A-State, however, the obtained factor patterns strongly support multidimensionality as well as the hypothesized qualitative differences between normal and non-normal groups. Support for the latter hypothesis comes from the fact that disturbed children were less able to discriminate among items involving negative feelings than normals and thus produced one cluster from these items while the normals produced three. Other evidence of the differential operation of the scale in these two groups comes from the differences in the amount of variance accounted for by A-State and A-Trait factors. While these two factors operated approximately equally in the normal group, A-State accounted for significantly more of the variance in the non-normal children.

This suggests that at any one point in time, A-State may be a better predictor of behavior of emotionally disturbed children while both A-State and A-Trait should be equally potent for normal children. At any rate, the STAIC appears to have a different meaning when applied to normal and non-normal children.

The multidimensionality of the locus of control construct in children was fully supported, as multiple factors emerged in all three groups. The presence of qualitative differences also is supported by the varying factor patterns for each group and by the differences in themes among the groups. The main dimension in normals was a generalized expectancy theme, while the emotionally disturbed factors reflected feelings (Helpless, Persecuted) and the juvenile delinquents' factors emphasized situations or environments (e.g., at home, with peers, with parents). Even within the two non-normal groups where there were some similar factors, qualitative differences emerged with the major factor which accounted for the greatest amount of variability being different for each group - Helplessness for the disturbed and Superstition for the delinquent group. The locus of control scale thus can be seen to operate differently in different groups. Whether the scale is measuring a trait construct and/or the subject's perception of the situation in which he finds himself is an issue here, since the two non-normal groups were living in institutions. The possibility that obtained differences could be accounted for by the subjects' accurate perception of the sources of control should not be discounted, and an experimental evaluation of the impact of situational variables will be necessary to clarify this issue. Nonetheless, there do appear to be qualitative differences among groups.

The two scales utilized in this study have been found to discriminate between normals and non-normals on the basis of overall scores. Interpretation of such scores in regard to a client, however, on the basis of their meanings in a normal population would seem to be a gross oversimplification of the com-

plexity of the constructs purportedly measured. The prudent course of action for scale developers is to be aware of the subject population being employed, as has been suggested by Endler and Okada (1975), and to include factor analytic techniques in their cross-validation of scales. In addition to reducing errors of interpretation, the specification of dimensions of constructs as they operate in varying populations should serve to increase the utility of the scales, both for assessment and for behavior change.

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